

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A retry communication control method for a packet communication system that includes a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e) and is capable of exchanging packets between the terminal apparatuses according to priority levels assigned to the packets, comprising:

 sending (S1) packets of a trial class for a predetermined period (T1) from a caller terminal apparatus;

 estimating (S3) whether or not the communication quality of the packets is sufficient;

 if it is sufficient, sending (S4) packets of a priority class thereafter;

 if it is insufficient, stopping (S5) to send packets of the trial class for a second predetermined period (T2);

 after the second predetermined period, estimating (S6) according to a monitored traffic rate (CA) of packets of the priority class whether or not it is possible to send packets of the trial class; and

 if it is possible, again sending (S1) packets of the trial class for the predetermined period (T1) from the caller terminal apparatus.

2. (Original) A retry communication control method for a packet communication system that includes a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e) and is capable of

exchanging packets between the terminal apparatuses according to priority levels assigned to the packets, comprising:

- sending (S11) packets of a trial class for a predetermined period (T1) from a caller terminal apparatus;

- estimating (S13) whether or not the communication quality of the packets is sufficient;

- if it is sufficient, sending (S14) packets of a priority class thereafter;

- if it is insufficient, stopping (S15) to send packets of the trial class for a second predetermined period (T2);

- after the second predetermined period, estimating (S16) according to a communication quality level (CQ) of the preceding trial-class packets whether or not it is possible to send packets of the trial class; and

- if it is possible, again sending (S11) packets of the trial class for the predetermined period (T1) from the caller terminal apparatus.

3. (Original) A retry communication control method for a packet communication system that includes a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e) and is capable of exchanging packets between the terminal apparatuses according to priority levels assigned to the packets, comprising:

- sending (S21) packets of a trial class for a predetermined period (T1) from a caller terminal apparatus;

- estimating (S23) whether or not the communication quality of the packets is sufficient;

- if it is sufficient, sending (S24) packets of a priority class thereafter;

- if it is insufficient, stopping (S25) to send packets of the trial class for a second predetermined period (T2);

after the second predetermined period, estimating (S26) whether or not it is possible to send packets of the trial class according to an execution probability estimated from a communication quality (CQ) of the preceding trial-class packets; and

if it is possible, again sending (S21) packets of the trial class for the predetermined period (T1) from the caller terminal apparatus.

4. (Original) A retry communication control method for a packet communication system that includes a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e) and is capable of exchanging packets between the terminal apparatuses according to priority levels assigned to the packets, comprising:

starting (S31) to send packets of a trial class from a caller terminal apparatus;

estimating (S33) from time to time whether or not the communication quality of the packets is sufficient;

if it is sufficient and if the sufficient state continues for a predetermined period (T1), sending (S35) packets of a priority class;

if it becomes insufficient, immediately stopping (S36) to send packets of the trial class and continuously stopping to send packets of the trial class for a second predetermined period (T3);

after the second predetermined period, estimating (S37) whether or not it is possible to send packets of the trial class; and

if it is possible, again sending (S31) packets of the trial class from the caller terminal apparatus.

5. (Currently amended) The retry communication control method of ~~any one of~~ claims claim 1 to 4, wherein the caller terminal apparatus is charged for a fee from the time when starting to transfer packets of the priority class.

6. (Original) A retry communication control system including a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e), packets of a trial class being sent from one terminal apparatus to another to determine, according to the communication quality of the sent packets, whether or not it is possible to send packets of a priority class, comprising:

means for sending packets of the trial class for a predetermined period (T1);

means for estimating whether or not the communication quality of the packets is sufficient;

means for sending, if it is sufficient, packets of the priority class thereafter;

means for stopping, if it is insufficient, to send packets of the trial class for a second predetermined period (T2);

means for estimating, after the second predetermined period, according to a monitored traffic rate (CA) of packets of the priority class whether or not it is possible to send packets of the trial class; and

means for again sending, if it is possible, packets of the trial class for the predetermined period (T1) from a caller terminal apparatus.

7. (Original) The retry communication control system of claim 6, wherein each of the terminal apparatuses (40a - 40e) has each of the means.

8. (Original) The retry communication control system of claim 6, wherein each of the packet transfer apparatuses (10a, 10b, 10c) has each of the means.

9. (Original) The retry communication control system of claim 6, further comprising:

a call control apparatus to start charging a caller terminal apparatus for a fee when the transfer of packets of the priority class is started.

10. (Original) A retry communication control system including a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e), packets of a trial class being sent from one terminal apparatus to another to determine, according to the communication quality of the sent packets, whether or not it is possible to send packets of a priority class, comprising:

means for sending packets of the trial class for a predetermined period (T1);

means for estimating whether or not the communication quality of the packets is sufficient;

means for sending, if it is sufficient, packets of the priority class thereafter;

means for stopping, if it is insufficient, to send packets of the trial class for a second predetermined period (T2);

means for estimating, after the second predetermined period, according to a communication quality level (CQ) of the preceding trial-class packets whether or not it is possible to send packets of the trial class; and

means for again sending, if it is possible, packets of the trial class for the predetermined period (T1) from a caller terminal apparatus.

11. (Original) The retry communication control system of claim 10, wherein each of the terminal apparatuses (40a - 40e) has each of the means.

12. (Original) The retry communication control system of claim 10, wherein each of the packet transfer apparatuses (10a, 10b, 10c) has each of the means.

13. (Original) The retry communication control system of claim 10, further comprising:

a call control apparatus to start charging a caller terminal apparatus for a fee when the transfer of packets of the priority class is started.

14. (Original) A retry communication control system including a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e), packets of a trial class being sent from one terminal apparatus to another to determine, according to the communication quality of the sent packets, whether or not it is possible to send packets of a priority class, comprising:

means for sending packets of the trial class for a predetermined period (T1);

means for estimating whether or not the communication quality of the packets is sufficient;

means for sending, if it is sufficient, packets of the priority class thereafter;

means for stopping, if it is insufficient, to send packets of the trial class for a second predetermined period (T2);

means for estimating, after the second predetermined period, whether or not it is possible to send packets of the trial class according to an execution probability estimated from a communication quality (CQ) of the preceding trial-class packets; and

means for again sending, if it is possible, packets of the trial class for the predetermined period (T1) from a caller terminal apparatus.

15. (Original) The retry communication control system of claim 14, wherein each of the terminal apparatuses (40a - 40e) has each of the means.

16. (Original) The retry communication control system of claim 14, wherein each of the packet transfer apparatuses (10a, 10b, 10c) has each of the means.

17. (Original) The retry communication control system of claim 14, further comprising:

a call control apparatus to start charging a caller terminal apparatus for a fee when the transfer of packets of the priority class is started.

18. (Original) A retry communication control system including a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e), packets of a trial class being sent from one terminal apparatus to another to determine, according to the communication quality of the sent packets, whether or not it is possible to send packets of a priority class, comprising:

means for starting to send packets of the trial class;

means for estimating from time to time whether or not the communication quality of the packets is sufficient;

means for sending, if the communication quality is sufficient and if the sufficient state continues for a predetermined period (T1), packets of the priority class;

means for immediately stopping, if the communication quality becomes insufficient, to send packets of the trial class and continuously stopping to send packets of the trial class for a second predetermined period (T3);

means for estimating, after the second predetermined period, whether or not it is possible to send packets of the trial class; and

means for again sending, if it is possible, packets of the trial class from a caller terminal apparatus.

19. (Original) The retry communication control system of claim 18, wherein each of the terminal apparatuses (40a - 40e) has each of the means.

20. (Original) The retry communication control system of claim 18, wherein each of the packet transfer apparatuses (10a, 10b, 10c) has each of the means.

21. (Original) The retry communication control system of claim 18, further comprising:

a call control apparatus to start charging a caller terminal apparatus for a fee when the transfer of packets of the priority class is started.

22. (Original) A program installed in a packet communication system that includes a plurality of packet transfer apparatuses (10a, 10b, 10c) each connected to a network (1000) and to at least one terminal apparatus (40a - 40e) and is capable of exchanging packets between the terminal apparatuses according to priority levels assigned to the packets, the program making the packet communication system execute:

a procedure (S1) of sending packets of a trial class for a predetermined period (T1) from a caller terminal apparatus;

a procedure (S3) of estimating whether or not the communication quality of the packets is sufficient;

a procedure (S4) of sending, if the communication quality is sufficient, packets of a priority class thereafter;

a procedure (S5) of stopping, if the communication quality is insufficient, to send packets of the trial class for a second predetermined period (T2);

a procedure (S6) of estimating, after the second predetermined period, according to a monitored traffic rate (CA) of packets of the priority class whether or not it is possible to send packets of the trial class; and

a procedure (S1) of again sending, if it is possible, packets of the trial class for the predetermined period (T1) from the caller terminal apparatus.

23. (Original) A packet transfer possibility determination method for a packet transfer apparatus (11a - 11i) that transfers packets from a first terminal apparatus (such as 50a) to a second terminal apparatus according to a packet transfer priority level, i.e., a trial class or a priority class specified by a transfer request from the first terminal apparatus, comprising:

 presetting a trial-class band capacity (BWmh) not to discard packets of the trial class; and

 if a total flow rate of packets of the trial and priority classes exceeds the trial-class band capacity (BWmh), discarding packets of the trial class.

24. (Original) The packet transfer possibility determination method of claim 23, comprising:

 if a total flow rate of packets including packets of a new transmission request exceeds the trial-class band capacity (BWmh), discarding the new packets if they are of the trial class and passing them if they are of the priority class.

25. (Original) The packet transfer possibility determination method of claim 24, comprising:

 presetting a priority-class band capacity (BWh) not to discard packets of the priority class; and

 if a total flow rate of packets including packets of the priority class of a new transmission request exceeds the priority-class band capacity (BWh), discarding the new packets of the priority class.

26. (Original) The packet transfer possibility determination method of claim 23, comprising:

transferring packets in communication-band-variable flows, and if a total flow rate exceeds the trial-class band capacity (BW_{mh}) due to a communication band expansion, discarding packets of the trial class.

27. (Original) The packet transfer possibility determination method of claim 26, comprising:

presetting a priority-class band capacity (BWh) not to discard packets of the priority class; and

if a total flow rate exceeds the priority-class band capacity (BWh) due to a communication band expansion, discarding packets of the priority class.

28. (Currently amended) The packet transfer possibility determination method of ~~any one of claims~~ claim 23 ~~to 27~~, wherein the terminal apparatus (such as 50a) makes a request of transmitting packets of the trial class, and according to a resultant transmission quality, makes a request of transmitting packets of the priority class or again of the trial class.

29. (Original) A packet transfer apparatus (11a - 11i) for transferring packets from a first terminal apparatus (such as 50a) to a second terminal apparatus according to a packet transfer priority level, i.e., a trial class or a priority class specified by a transfer request from the first terminal apparatus, comprising:

a storage part (1112) prestoring a trial-class band capacity (BW_{mh}) not to discard packets of the trial class; and

a flow-rate monitor part (1112) to discard packets of the trial class if a total flow rate of packets of the trial and priority classes exceeds the trial-class band capacity (BW_{mh}).

30. (Original) The packet transfer apparatus of claim 29, wherein, if a total flow rate of packets including packets of a new transmission request exceeds the trial-class band capacity (BW_{mh}), the flow-rate monitor part (1112) discards the new packets if they are of the trial class and passes them if they are of the priority class.

31. (Original) The packet transfer apparatus of claim 30, wherein:
the storage part (1112) prestores also a priority-class band capacity (BWh) not to discard packets of the priority class; and
if a total flow rate of packets including packets of the priority class of a new transmission request exceeds the priority-class band capacity (BWh), the flow-rate monitor part (1112) discards the new packets of the priority class.

32. (Original) The packet transfer apparatus of claim 29, wherein packets are transferred in communication-band-variable flows, and if a total flow rate exceeds the trial-class band capacity (BW_{mh}) due to a communication band expansion, the flow-rate monitor part (1112) discards packets of the trial class.

33. (Original) The packet transfer apparatus of claim 32, wherein:
the storage part (1112) prestores also a priority-class band capacity (BWh) not to discard packets of the priority class; and
if a total flow rate exceeds the priority-class band capacity (BWh) due to a communication band expansion, the flow-rate monitor part (1112) discards packets of the priority class.

34. (Original) The packet transfer apparatus of claim 29, comprising:
a plurality of circuits (A, B) each capable of transferring packets of the priority and trial classes and being monitored by the flow-rate monitor part (1112),
wherein, if at least one of the circuits fails so that all flows of packets in the failed circuit are switched to at least a second of the circuits and if a total flow rate of packets of the trial and priority classes in the second circuit exceeds the trial-class band capacity (BW_{mh}), the flow-rate monitor part (1112) discards packets of the trial class.

35. (Original) The packet transfer apparatus of claim 29, wherein the terminal apparatus is a mobile terminal apparatus (60b) that transmits packets by radio, and if a total flow rate of packets of the trial and priority classes exceeds the trial-class band capacity (BW_{mh}) due to handover caused by a movement of the mobile terminal apparatus, the flow-rate monitor part (1112) discards packets of the trial class.

36. (Original) A program installed in a packet transfer apparatus (11a - 11i) for transferring packets from a first terminal apparatus (such as 50a) to a second terminal apparatus according to a packet transfer priority level, i.e., a trial class or a priority class specified by a transfer request from the first terminal apparatus, the program making the packet transfer apparatus (11a - 11i) execute:

a procedure of presetting a trial-class band capacity (BW_{mh}) not to discard packets of the trial class; and

a procedure of discarding (S44) packets of the trial class if a total flow rate of packets of the trial and priority classes exceeds (S42) the trial-class band capacity (BW_{mh}).

37. (Original) A packet transfer system (1a) comprising a plurality of terminal apparatuses (70a, 70b) that make a call setting request in a trial class as a packet transfer priority level, and according to a resultant communication quality, make a call setting request in a priority class or again in the trial class, a plurality of packet transfer apparatuses (12a, 12d) that are interposed between the terminal apparatuses to transfer packets at their respective priority levels, and a call control apparatus (20) that manages the state of each call originated from each terminal apparatus,

the call control apparatus (20) prestoring contract information that includes at least a priority-level-transition pattern available for the terminal apparatuses controlled by the call control apparatus, and when a call is established, notifying the packet transfer apparatuses accommodating the call conducting terminal apparatuses of monitor information that includes information to identify packets exchanged in connection with the call and information that is used to determine whether or not the packets exchanged in connection with the call conform to the contract information and at least includes an identifier representative of the priority-level-transition pattern (S83),

the packet transfer apparatuses (12a, 12d) receiving the monitor information, estimating, according to the identifier, a priority level transition of packets from the terminal apparatuses concerning the call, and determining whether or not a type of service related to the priority level of each packet conforms to the contract information.

38. (Original) The packet transfer system of claim 37, wherein the packet transfer apparatus (12a, 12d), if determines that the type of service does not conform to the contract information, notifies the call control apparatus (20) of the same, and the call control apparatus (20) cuts the communication related to the call.

39. (Original) The packet transfer system of claim 37, wherein the packet transfer apparatus (12a, 12d), if determines that the type of service does not conform to the contract information, discards the packet.

40. (Original) The packet transfer system of claim 37, wherein the packet transfer apparatus (12a, 12d), if determines that the type of service does not conform to the contract information, transfers the packet at a priority level corresponding to a type of service conforming to the contract information.

41. (Currently amended) The packet transfer system of ~~any one of claims~~ claim 37 to 40, wherein the call control apparatus (20) determines (S72, S74) whether or not a type of service requested by a call setting request from the terminal apparatus (70a, 70b) conforms to the contract information, and if it does not conform to the contract information, rejects (S76) the call setting request.

42. (Original) A packet transfer system (1a) comprising a plurality of terminal apparatuses (70a, 70b) each making a call setting request for transferring packets with a type of service corresponding to one of a plurality of priority levels, a plurality of packet transfer apparatuses (12a, 12d) interposed between the terminal apparatuses to transfer packets from the terminal apparatuses at their respective priority levels, and a call control apparatus (20) managing the state of a call originated from each terminal apparatus,

the call control apparatus (20) notifying, when a call is established, the packet transfer apparatuses accommodating the call conducting terminal apparatuses of monitor information that includes information to identify packets exchanged in connection with the call and information to determine whether or not the packets exchanged in connection with the call conform to the contract information (S83),

the packet transfer apparatuses (12a, 12d) having a preset threshold value for a minimum flow rate of packets, monitoring, upon receiving the monitor information, a flow rate of packets sent from the terminal apparatuses concerning the call, and if the flow rate is below the threshold value, notifying the call control apparatus (20) of the same,

the call control apparatus (20) cutting the communication related to the call upon receiving the notification that the flow rate is below the threshold value.

43. (Original) The packet transfer system of claim 42, wherein the packet transfer apparatus (12a, 12d) has a preset upper limit threshold value for a maximum flow rate of packets, and if a flow rate exceeds the upper limit threshold value, notifies the call control apparatus (20) of the same, and the call control apparatus (20) cuts the communication related to the call when receiving the notification that the flow rate is above the upper limit threshold value.

44. (Currently amended) The packet transfer system of ~~any one of claims~~ claim 42 and 43, wherein the packet transfer apparatus (12a, 12d) monitors a flow rate of packets according to the size of a token bucket (TB) and sets, as the threshold value for the minimum flow rate of packets, a value $(B1 + B2)$ greater than an initial value $(B1)$ of a token counter.

45. (Original) A packet monitor method for a packet transfer system (1a) that makes a call setting request in a trial class as a packet transfer priority level, and according to a resultant communication quality, makes a call setting request in a priority class or again in the trial class, to transfer packets, the method comprising:

 presetting contract information that includes at least a priority-level-transition pattern available for each user;

 after a call is established, estimating a priority level transition of packets to be transferred according to monitor information that includes information to identify packets exchanged in connection with the call and information that is used to determine whether or not the packets exchanged in connection with the call conform to the contract information and at least includes an identifier representative of the priority-level-transition pattern, and determining whether or not a type of service related to the priority level of a given packet conforms to the contract information.

46. (Original) A packet monitor method for a packet transfer system (1a) that makes a call setting request for transferring packets with a type of service corresponding to one of a plurality of priority levels and transfers packets at each priority level, the method comprising:

 after a call is established, monitoring a flow rate of packets related to the call, and if the flow rate is below a preset threshold value for a minimum flow rate of packets, cutting communication related to the call.

47. (Original) A call control apparatus (20) for receiving a call setting request in a trial class as a packet transfer priority level, and according to a resultant communication quality, receiving a call setting request in a priority class or again in the trial class, comprising:

a contract information storage part (205) to prestore contract information that includes at least a priority-level-transition pattern available for accommodating terminal apparatuses;

a contract information determination part (201) to determine, at a call setting request, whether or not the type of service of a call related to the call setting request conforms to the contract information;

a monitor information notification part (203) to notify, when a call is established, packet transfer apparatuses accommodating terminal apparatuses that conduct the call of monitor information that includes information to identify packets exchanged in connection with the call and information that is used to determine whether or not the packets exchanged in connection with the call conform to the contract information and at least includes an identifier representative of the priority-level-transition pattern; and

a call state management part (204) to cut communication related to the call upon receiving notification from the packet transfer apparatus that the type of service of a given packet does not conform to the contract information.

48. (Original) A packet transfer apparatus (12a, 12b) for transferring a packet at a priority level corresponding to a type of service of the packet, comprising:

a class transition monitor part (124a, 124d) to receive monitor information that includes information to identify packets exchanged in connection with a call and information that is used to determine whether or not the packets exchanged in connection with the call conform to the contract information and at least includes an identifier representative of a priority-level-transition pattern, estimate, according to the identifier, a priority level transition of packets from the terminal apparatus concerning the call, and determine whether or not the type of service related to the priority level of each packet conforms to the contract information;

a packet discard part (122a, 122d) to discard the packet if it is determined that the type of service does not conform to the contract information; and

a packet rewrite part (121a, 121d) to rewrite the type of service into that conforming to the contract information if it is determined that the type of service does not conform to the contract information.

49. (Original) A packet transfer apparatus (12a, 12d) for transferring a packet at a priority level corresponding to a type of service of the packet, comprising:

a packet-flow-rate monitor part (124a, 124d) having a preset threshold value for a minimum flow rate of packets, to monitor, upon receiving monitor information that includes information to identify packets exchanged in connection with a call and information to determine whether or not the packets exchanged in connection with the call conform to contract information, whether or not a flow rate of packets sent from terminal apparatuses concerning the call is below the threshold value.

50. (Original) A packet transfer system (1b) including a plurality of packet transfer apparatuses (13a - 13d) interposed between a plurality of terminal apparatuses (80a, 80b) to transfer packets at their respective priority levels, comprising:

a monitor apparatus (30) to monitor packets; and

a call control apparatus (21) to control the state of a call between the terminal apparatuses, determine whether or not packets related to the call must be monitored, and if the packets must be monitored, pass the packets through the monitor apparatus (30).

51. (Original) The packet transfer system of claim 50, wherein:

the call control apparatus (21), if determines to monitor packets related to the call, notifies the terminal apparatuses (80a, 80b) that exchange packets related to the call of an address of the monitor apparatus (30) as a destination address and transmits a monitor start instruction including addresses of the terminal apparatuses (80a, 80b) that exchange packets related to the call to the monitor apparatus (30); and

the monitor apparatus (30), upon receiving the monitor start instruction, monitors each packet whose originator address is a first of the terminal apparatus addresses contained in the monitor start instruction, rewrites a destination address of the packet into a second of the terminal apparatus addresses contained in the monitor start instruction, and transmits the packet.

52. (Original) A packet transfer system (1c, 1d, 1e) including a plurality of packet transfer apparatuses (14a - 14d, 15a, 16a - 16d) interposed between a plurality of terminal apparatuses (80a, 80b) to transfer packets at their respective priority levels from a caller terminal apparatus to a destination terminal apparatus, comprising:

- a monitor apparatus (30a, 31, 32, 33, 341, 342) to monitor packets; and
- a call control apparatus (22, 23) to control the state of a call between the terminal apparatuses and send a packet that must be transferred and monitored to the monitor apparatus (30a, 31, 32, 33, 341, 342).

53. (Original) The packet transfer system of claim 52, wherein:

- the call control apparatus (22), if there is a packet to be transferred and monitored, notifies each of the packet transfer apparatuses (14a, 14d) accommodating the terminal apparatuses related to the communication of the packet to be monitored of addresses of the terminal apparatuses related to the communication of the packet to be monitored and transmits a monitor start instruction containing the addresses of the terminal apparatuses related to the communication of the packet to be monitored to the monitor apparatus;

- the packet transfer apparatuses (14a, 14d) receive the addresses of the terminal apparatuses related to the communication of the packet to be monitored, rewrite a destination address of the packet whose originator address is in the notified addresses into an address of the monitor apparatus (31), and transmit the packet; and

- the monitor apparatus (31) receives the monitor start instruction, monitors the packet whose originator address is in the terminal apparatus addresses contained in the monitor start instruction, rewrites the destination address of the packet into the address of the destination terminal apparatus contained in the monitor start instruction, and transmits the packet.

54. (Original) The packet transfer system of claim 52, wherein:

the packet transfer apparatuses (16a - 16d) transfer packets according to multi-protocol label switching (MPLS) and have a preset label switch path (LSP) for passing through the monitor apparatus between all terminal apparatuses pass;

the call control apparatus (33), when monitoring transferred packets, notifies the packet transfer apparatuses (16a, 16d) accommodating the terminal apparatuses related to the communication of monitored packets of addresses of the terminal apparatuses related to the communication of monitored packets; and

the packet transfer apparatuses (16a, 16d), upon receiving the notification of the addresses of the terminal apparatuses related to the communication of monitored packets, set an LSP label for passing through the monitor apparatus as an MPLS label of each monitored packet to be sent from the terminal apparatus having the notified address to a destination terminal apparatus.

55. (Original) The packet transfer system of claim 52, wherein:

the monitor apparatus (33) is connected so as to obtain a packet from a path between two predetermined packet transfer apparatuses (16c, 16d), the packet transfer apparatuses (16a - 16d) transfer packets according to multi-protocol label switching (MPLS), and the packet transfer apparatuses (16a - 16d) have a preset label switch path (LSP) between all terminal apparatuses, the preset LSP including a path between the two predetermined packet transfer apparatuses;

the call control apparatus (23), when monitoring transferred packets, notifies the packet transfer apparatuses (16a, 16d) accommodating the terminal apparatuses related to the communication of monitored packets of addresses of the terminal apparatuses related to the communication of monitored packets; and

the packet transfer apparatuses (16a, 16d), upon receiving the notification of the addresses of the terminal apparatuses related to the communication of monitored packets, set an LSP label for passing through the path between the two packet transfer apparatuses (16c, 16d) as an MPLS label of each monitored packet to be sent from the terminal apparatus having the notified address to a destination terminal apparatus.

56. (Original) The packet transfer system of claim 52, wherein:
each packet transfer apparatus (15a) has an output port corresponding to the monitor apparatus;

the call control apparatus, when monitoring transferred packets, notifies each packet transfer apparatus (15a) accommodating a terminal apparatus related to the communication of monitored packets of addresses of terminal apparatuses related to the communication of monitored packets; and

the packet transfer apparatus (15a), upon receiving the notification of the addresses of the terminal apparatuses related to the communication of monitored packets, copies a packet passing through a port corresponding to the address of the terminal apparatus related to the communication of monitored packets to the output port corresponding to the monitor apparatus.

57. (Currently amended) The packet transfer system of ~~any one of claims~~ claim 52 to 56, further comprising:

input means (91) capable of identifying the packets to be monitored.

58. (Original) The packet transfer system of claim 57, wherein an instruction to specify a specific call is entered in the input means (91) to identify the packets to be monitored.

59. (Original) The packet transfer system of claim 57, wherein an instruction to specify a specific terminal apparatus is entered in the input means (91) to identify the packets to be monitored.

60. (Original) The packet transfer system of claim 57, wherein an instruction to specify a specific user is entered in the input means (91) to identify the packets to be monitored.

61. (Currently amended) The packet transfer system of ~~any one of claims~~ claim 52 to 56, wherein the call control apparatus (22, 23) has a communication history management part (212) to record monitored results for each terminal apparatus and for each user, and when a new communication request is made by a terminal apparatus or by a user, identifies the packets to be monitored according to the monitored results.

62. (Currently amended) The packet transfer system of ~~any one of claims~~ claim 52 to 56, wherein the call control apparatus (22, 23), when a new communication request is made, identifies the packets to be monitored according to a communication attribute written in a call control signal.

63. (Currently amended) The packet transfer system of ~~any one of claims~~ claim 52 to 56, wherein the call control apparatus (22, 23), when a new communication request is made, identifies the packets to be monitored according to routed apparatus information written in a call setting signal.

64. (Currently amended) The packet transfer system of ~~any one of claims~~ claim 50 to 56, wherein the monitor apparatus (30a) has a test packet monitor part (303) that monitors only test packets of a trial class.

65. (Currently amended) The packet transfer system of ~~any one of claims~~ claim 50 to 54, wherein the monitor apparatus (30, 31, 32, 30a), when transferring a received packet to a destination terminal apparatus, intentionally discards the received packet, and if receiving a report that the discarded packet has correctly been received, determines that the destination terminal apparatus is a maliciously operating terminal apparatus.

66. (Original) A packet monitor method for a packet transfer system (1b) including a plurality of packet transfer apparatuses (13a - 13d) interposed between a plurality of terminal apparatuses (80a, 80b) to transfer packets at their respective priority levels, a call control apparatus (21) to control the state of a call between the terminal apparatuses, and a monitor apparatus (30) to monitor the packets, comprising:

at the call control apparatus (21), determining (S91), upon receiving a call setting request, whether or not packets for the call must be monitored;

at the call control apparatus (21), if determining to monitor the packets, notifying (S92) the terminal apparatuses that exchange packets for the call of an address of the monitor apparatus as a destination address;

at the call control apparatus (21), transmitting (S101) to the monitor apparatus (30) a monitor start instruction including addresses of the terminal apparatuses that exchange packets for the call;

at the monitor apparatus (30), upon receiving the monitor start instruction, monitoring (S112) each packet whose originator address is a first of the terminal apparatus addresses contained in the monitor start instruction; and

at the monitor apparatus (30), rewriting (S113) a destination address of the packet into a second of the terminal apparatus addresses contained in the monitor start instruction and transmitting (S115) the packet.

67. (Original) A packet monitor method for a packet transfer system (1c) including a plurality of packet transfer apparatuses (14a to 14d) interposed between a plurality of terminal apparatuses (80a, 80b) to transfer packets at their respective priority levels, a call control apparatus (22) to control the state of a call between the terminal apparatuses, and a monitor apparatus (31) to monitor the packets, comprising:

at the call control apparatus (22), if monitoring transferred packets, notifying the packet transfer apparatuses (14a, 14d) accommodating the terminal apparatuses that exchange the packets to be monitored of addresses of the terminal apparatuses that exchange the packets to be monitored;

at the call control apparatus (22), transmitting to the monitor apparatus a monitor start instruction containing the addresses of the terminal apparatuses that exchange the packets to be monitored;

at the packet transfer apparatuses (14a, 14d), after receiving the addresses of the terminal apparatuses that exchange the packets to be monitored, rewriting a destination address of each packet whose originator address is in the notified addresses into the address of the monitor apparatus (31), and transmitting the packet;

at the monitor apparatus (31), after receiving the monitor start instruction, monitoring (S132) each packet whose originator address is in the terminal apparatus addresses contained in the monitor start instruction; and

at the monitor apparatus (31), rewriting (S133) the destination address of the packet into the address of the destination terminal apparatus contained in the monitor start instruction and transmitting (S134) the packet.

68. (Original) A packet monitor method for a packet transfer system (1d) including a plurality of packet transfer apparatuses (16a - 16d) interposed between a plurality of terminal apparatuses (80a, 80b), transferring packets according to multi-protocol label switching (MPLS), and having a preset label switch path (LSP) for passing through a monitor apparatus between all terminal apparatuses, a call control apparatus (23) to manage the state of a call between the terminal apparatuses, and the monitor apparatus (32) to monitor packets, comprising:

at the call control apparatus (23), when monitoring transferred packets, notifying the packet transfer apparatuses (16a, 16d) accommodating the terminal apparatuses that exchange the packets to be monitored of addresses of the terminal apparatuses that exchange the packets to be monitored; and

at the packet transfer apparatuses (16a, 16d), after receiving the notification of the addresses of the terminal apparatuses that exchange the packets to be monitored, setting (S142, S143) an LSP label for passing through the monitor apparatus as an MPLS label of a packet to be sent from the terminal apparatus having the notified address to a destination terminal apparatus.

69. (Original) A packet monitor method for a packet transfer system (1e) including a plurality of packet transfer apparatuses (16a - 16d) interposed between a plurality of terminal apparatuses (80a, 80b), transferring packets according to multi-protocol label switching (MPLS), and having a preset label switch path (LSP) for passing through a monitor apparatus between all terminal apparatuses, a call control apparatus (23) to manage the state of a call between the terminal apparatuses, and the monitor apparatus (33) connected so as to obtain packets from a path between two predetermined packet transfer apparatuses and monitoring the packets, comprising:

at the call control apparatus (23), when monitoring transferred packets, notifying the packet transfer apparatuses (16a, 16d) accommodating the terminal apparatuses that exchange the packets to be monitored of addresses of the terminal apparatuses that exchange the packets to be monitored; and

at the packet transfer apparatuses (16a, 16d), after receiving the notification of the addresses of the terminal apparatuses that exchange the packets to be monitored, setting an LSP label for passing through the path between the two predetermined packet transfer apparatuses as an MPLS label of each packet to be sent from the terminal apparatus having the notified address to a destination terminal apparatus.

70. (Original) A packet monitor method for a packet transfer system including a monitor apparatus to monitor packets, a plurality of packet transfer apparatuses (15a) interposed between a plurality of terminal apparatuses, having an output port corresponding to the monitor apparatus, and transferring packets at their respective priority levels, and a call control apparatus to manage the state of a call between the terminal apparatuses, comprising:

at the call control apparatus, when monitoring transferred packets, notifying the packet transfer apparatuses (15a) accommodating the terminal apparatuses that exchange the packets to be monitored of addresses of the terminal apparatuses that exchange the packets to be monitored; and

at the packet transfer apparatuses (15a), after receiving the notification of the addresses of the terminal apparatuses that exchange the packets to be monitored, copying each packet passing through a port corresponding to one of the addresses of the terminal apparatuses that exchange the packets to be monitored to the output port corresponding to the monitor apparatus.

71. (Original) A call control apparatus comprising:

a call state management part (213) to manage the state of a call between terminal apparatuses (80a, 80b);

a monitor object determination part (214) to determine, when receiving a request for setting a call, whether or not packets related to the call must be monitored and whether or not the call must be monitored;

an address notification part (215) to notify, when it is determined that packets related to the call must be monitored, the terminal apparatuses that exchange packets related to the call of an address of a monitor apparatus as a destination address; and

a monitor communication part (216) to transmit to the monitor apparatus a monitor start instruction containing addresses of the terminal apparatuses that exchange packets related to the call.

72. (Original) A call control apparatus comprising:

a call state management part (213) to manage the state of a call between terminal apparatuses;

an address notification part (215) to notify, when it is determined that packets exchanged between the terminal apparatuses must be monitored, packet transfer apparatuses accommodating the terminal apparatuses that exchange the packets to be monitored of addresses of the terminal apparatuses that exchange the packets to be monitored; and

a monitor communication part (216) to transmit to a monitor apparatus a monitor start instruction containing the addresses of the terminal apparatuses that exchange the packets to be monitored.

73. (Original) A packet transfer apparatus comprising:
a packet transfer part (141a, 141d) to transfer a packet at a priority level from a caller terminal apparatus to a destination terminal apparatus; and
a packet rewrite part (142a, 142d) to rewrite, upon receiving a notification of addresses of terminal apparatuses that exchange packets to be monitored, a destination address of a packet whose originator address is in the notified addresses into an address of a monitor apparatus.

74. (Original) A packet transfer apparatus comprising:
a packet transfer part (161a, 161d) to transfer a packet at a priority level from a caller terminal apparatus to a destination terminal apparatus; and
a label rewrite part (162a, 162d) to set, upon receiving a notification of addresses of terminal apparatuses that exchange packets to be monitored, an LSP label for passing through a monitor apparatus as an MPLS label of a packet to be sent from a terminal apparatus whose address is in the notified addresses to a destination terminal apparatus.

75. (Original) A monitor apparatus comprising:
a packet monitor part (301) to monitor, upon receiving a monitor start instruction, each packet whose originator address is a terminal apparatus address contained in the monitor start instruction; and
a packet rewrite part (302) to rewrite a destination address of the monitored packet into an address of a destination terminal apparatus that is in the monitor start instruction and relates to the communication of the monitored packet.

76. (New) The retry communication control method of claim 2, wherein the caller terminal apparatus is charged for a fee from the time when starting to transfer packets of the priority class.

77. (New) The retry communication control method of claim 3, wherein the caller terminal apparatus is charged for a fee from the time when starting to transfer packets of the priority class.

78. (New) The retry communication control method of claim 4, wherein the caller terminal apparatus is charged for a fee from the time when starting to transfer packets of the priority class.

79. (New) The packet transfer system of claim 52, wherein the monitor apparatus (30a) has a test packet monitor part (303) that monitors only test packets of a trial class.

80. (New) The packet transfer system of claim 52, wherein the monitor apparatus (30, 31, 32, 30a), when transferring a received packet to a destination terminal apparatus, intentionally discards the received packet, and if receiving a report that the discarded packet has correctly been received, determines that the destination terminal apparatus is a maliciously operating terminal apparatus.